What is claimed is:

1. A method of establishing timing for first and second modulators in a quantum key distribution (QKD) system, comprising:

setting the second modulator to a fixed modulation;

incrementally scanning an activation signal for the first modulator over a range of timing values to determine the first modulator activation signal timing based on a change in detector counts of exchanged non-quantum signals;

setting the first modulator to a fixed modulation; and

incrementally scanning an activation signal for the second modulator over a range of timing values determine the second modulator activation signal timing based on a change in detector counts of exchanged non-quantum signals.

2. The method of claim 1, wherein the QKD system is a two-way system, and the first and second modulators are phase modulators.

3. The method of claim 2, wherein the first modulator is in a first QKD station (Bob) that generates the non-quantum signals, the second modulator is in a reflective QKD station (Alice) that reflects the non-quantum signals back to the first QKD station, and wherein the method further includes:

discerning between two timing intervals associated with non-quantum signals entering and leaving the first QKD station to ensure that only non-quantum or quantum signals entering the first QKD station are modulated by the first modulator.

4. The method of claim 1, wherein the modulator activation signals for the first and second modulators provide respective modulations that result in a maximum change in detector counts when the transmitted non-quantum signals experience a change in modulation.

5. The method of claim 1, wherein the activation signals for the first and second modulators provide respective modulations that are not basis modulations associated with establishing a quantum key.

6. The method of claim 1, wherein the detector counts occur in first and second detectors arranged so that constructively interfered non-quantum signals are detected in the first detector and destructively interfered non-quantum signals are detected in the second detector.

7. The method of claim 1, including for each modulator:

establishing a coarse timing interval;

dividing up the coarse timing interval into a number of sub-intervals; and

incrementally scanning the sub-intervals to establish a more accurate modulator timing.

8. The method of claim 7, including reducing a width of the modulator activation signal for each modulator.

9. A method of establishing timing between two modulators in a QKD system by exchanging non-quantum pulses, the method comprising for each modulator:

a) exchanging non-quantum signals to pass through each modulator;

b) performing a coarse timing adjustment by incrementally scanning a relatively wide modulator activation signal over a range of possible modulator timings to establish a coarse timing value that corresponds to a change in an amount of non-quantum signals detected due to a change in modulation of the non-quantum signal; and

c) performing a fine timing adjustment by incrementally scanning a relatively narrow modulator activation signal over a timing interval centered about the coarse timing determined in b) to establish a fine timing value that corresponds to a change in an amount of non-quantum signals detected due to a change in modulation of the non-quantum signal.

10. The method of claim 9, wherein the timing interval in c) is the same as the width of the relatively wide activation signal in b).

11. In a quantum key distribution (QKD) system having first and second optically linked QKD stations, a method of establishing timing of first and second modulator activation signals and V1 and V2 and for a first modulator MB in the first QKD station Bob and a second modulator MA in the second QKD station Alice, respectively, the method comprising:

a) setting the second modulator MA to a fixed modulation;

b) setting the first activation signal V1 to a relatively large initial width W1C;

c) varying the first activation signal timing in a coarse increment $\Delta T1$ about an initial timing T10 to establish a course timing T1C of the first activation signal by observing a change in detector counts of exchanged non-quantum pulses;

d) setting the first activation signal to a reduced width $W1F < W1C$

e) varying the first activation signal timing by reduced timing intervals $\Delta TR < \Delta T1$ about the coarse timing TC1 to establish a fine timing T1F of the first activation signal by observing a change in detector counts of exchanged non-quantum pulses;

f) setting the first modulator MB to a fixed modulation;

g) setting the second activation signal V2 to a relatively large initial width W2C;

h) varying the second activation signal timing by coarse timing intervals $\Delta T2$ about an initial timing T20 to establish a course timing T2C of the second activation signal by observing a change in detector counts of exchanged non-quantum pulses;

i) setting the second activation signal to reduced width $W2F < W2C$; and

j) varying the first activation signal timing in reduced timing increments $\Delta T2R < \Delta T2$ about the coarse timing TC2 to establish a fine timing T2F of the second activation signal by observing a change in detector counts of exchanged non-quantum pulses

12. The method of claim 11, including setting the first and second modulator activation signals to cause a maximum detector count change when a change in modulation occurs in the exchanged non-quantum pulses.

13. The method according to claim 11, wherein the QKD system is a two-way system with the first QKD as "Bob," and further including:

discerning between timing intervals associated with pulses entering and leaving the first QKD station to ensure that only quantum pulses that are incoming to the first QKD station are modulated during operation of the QKD system when exchanging quantum pulses to establish a quantum key.